

In the Claims

We claim:

Claim 1 (Currently amended): A sensing element ~~for use in a biosensor~~, comprising a matrix of discrete particles formed from a material capable of supporting surface electromagnetic waves, the particles having a biologically active molecule bound thereto.

Claim 2 (Currently amended): ~~A~~ The sensing element according to claim 1, wherein the particles are metallic.

Claim 3 (Currently amended): ~~A~~ The sensing element according to claim 1 ~~or claim 2~~, wherein the particles are gold.

Claim 4 (Currently amended): ~~A~~ The sensing element according to ~~any preceding claim~~ claim 1, wherein the particles are of sub-micron diameter.

Claim 5 (Currently amended): ~~A~~ The sensing element according to claim 4, wherein the diameter is from 5 nm to 50 nm.

Claim 6 (Currently amended): ~~A~~ The sensing element according to ~~any preceding claim~~ claim 1, wherein the particle matrix forms a surface on a dielectric substrate.

Claim 7 (Currently amended): ~~A~~ The sensing element according to claim 6, wherein the dielectric substrate is glass.

Claim 8 (Currently amended): ~~A~~ The sensing element according to ~~any preceding claim~~ claim 1, wherein the particles are linked via a polymer molecule.

Claim 9 (Currently amended): ~~A~~ The sensing element according to ~~any preceding claim~~ claim 1, wherein the biologically active molecule is a protein.

Claim 10 (Currently amended): ~~A~~ The sensing element according to claim 9, wherein the protein is a polymerase enzyme.

Claim 11 (Currently amended): ~~Apparatus~~ An apparatus for detecting a physical, chemical or biochemical reaction, comprising
a coherent radiation source for producing an incident wave;
a sensing element for supporting a molecule to be ~~analysed~~ analyzed, the element ~~being as defined in any preceding claim~~ comprising a matrix of discrete particles formed from a material capable of supporting surface electromagnetic waves, the particles having a biologically active molecule bound thereto; and
a detector for monitoring changes in radiation reflected from the sensing element.

Claim 12 (Currently amended): Use of a sensing element of claim 1, or an apparatus ~~as defined in any preceding claim~~ comprising the sensing element and a detector for monitoring changes in radiation reflected from the sensing element, in an assay to detect changes in the molecule bound to the sensing element.

Claim 13 (Currently amended): A method for monitoring a molecule undergoing a physical, chemical or biochemical reaction occurring on a sensing element, comprising ~~the steps of~~:

applying electromagnetic radiation to a sensing element having one molecule bound thereto; and

monitoring changes in radiation reflected from the sensing element, wherein the sensing element ~~is as defined in any of claims 1 to 10~~ comprises a matrix of discrete particles formed from a material capable of supporting surface electromagnetic waves, the particles having a biologically active molecule bound thereto.